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Institute of the Arts

Canberra School of Art

GRADUATE DIPLOMA of ART
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REPORT
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GRADUATE DIPLOMA OF ART

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ABSTRACT

Research into the combination of metal and glass in the form of wearable objects. The work explores this concern through a series of metal and glass chains. A study taking the form of an exhibition of jewellery at the Canberra School of Art Foyer Gallery from August 2 to 19, 1995 which comprises the outcome of the Studio Practice component (100%) and a report which documents the nature of the course of study undertaken.

INTRODUCTION

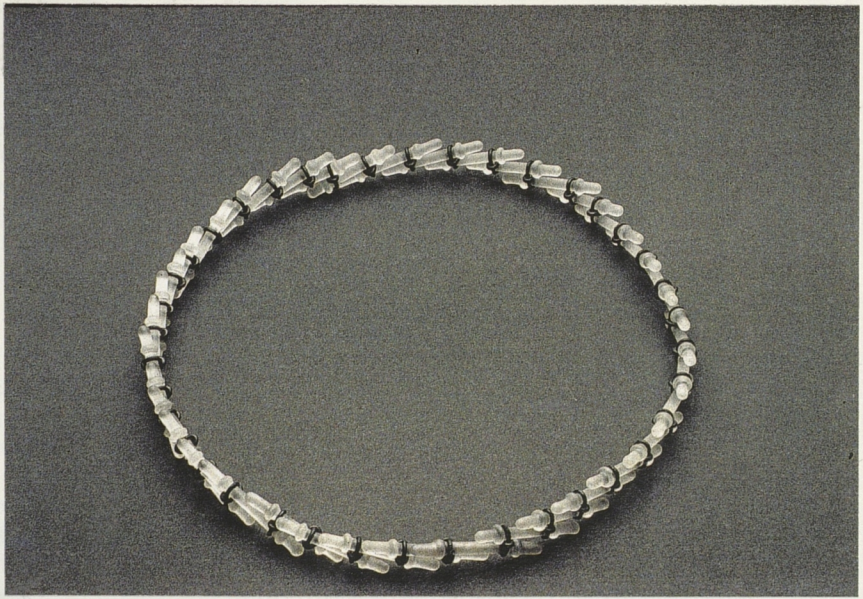
I began working with glass in 1988, in the undergraduate program at Sydney College of the Arts. While studying at SCA I began to develop a dual interest in the areas of glass and metal and I worked in both the jewellery and glass studios.

After exploring the possibilities of both materials I began the undergraduate course at Canberra School of Art in 1990 in the glass workshop. I came to Canberra because I wanted to have access to the techniques and equipment that were on offer.

While working in glass I explored various techniques including glass blowing, kiln forming and lampworking. I began to realise the degree of finesse achievable with glass and started to concentrate on working with small scale components. Initially the components that I made for use in jewellery were kiln formed, cut and polished. After participating in workshops given by Giselle Courtney and Peter Minson, I started to design work constructed of lampworked components.

While working mainly in the glass workshop, I also worked in the gold and silversmithing workshop undertaking a sub-major with Johannes Kuhnen. I began to see the possibilities of combining the two disciplines of glass and metal in a new and exciting way. I started to think of my work as jewellery, instead of glass jewellery, and I consider this an important step in the development of my work.

For my final body of work for assessment I presented eight glass and metal neckrings. These works combined lampworked glass components with metals such as sterling silver, stainless steel and anodised aluminium and were produced in both the glass and gold and silversmithing workshops.



Neckring 1991 ,lampworked glass, rubber O rings 23cm diameter

I moved into the area of gold and silversmithing for a few different reasons. I felt that the resources available in the workshop both in terms of equipment and tuition/supervision were well suited to the direction that I wanted to investigate in a post graduate year. I felt that I needed to have my glass making and metal working skills at a more equal level, and to gain confidence in the designing and making of more complex pieces. I also needed specific information about skills related to jewellery making. I felt that all of these needs could be met in the gold and silversmithing workshop.

My work is composed of interlocking systems and mechanisms. The basis of this is the design of single components or modules that fit together to form a chain. This chain is then connected at the first and last link forming a continuous circle. I have expanded this idea within a set of given parameters. I have researched different types of chains and different uses for chains and connecting mechanisms. For part of my research I looked at chains in engineering and hardware catalogues to see the different types of links and linking systems that are used in industrial applications.

It is interesting to hear people's reactions to the shapes used in my pieces. Some people are reminded of bones, others of strands of DNA. The inspiration for my work is everywhere. It is based on what makes things work, what makes things move or connect. So many things can be broken down into smaller and smaller parts until, at a microscopic level, you have a single component.

In designing my work I make small modifications in shape, scale and combinations of materials, continually working through the original idea: producing chains made of glass and metal components.

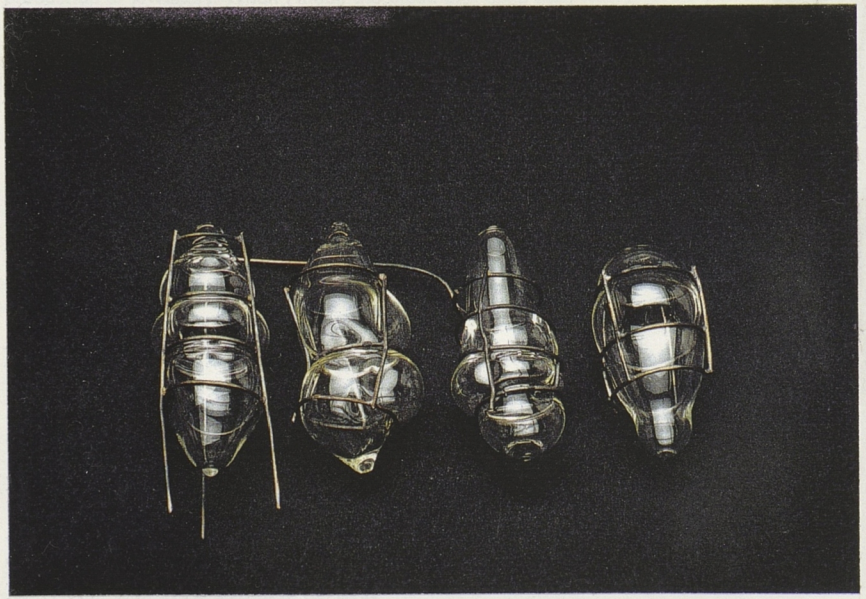
WORKING METHODS

When I began to work in the post graduate program I felt I should move away from specifically producing jewellery in the form of neckrings, and spent the first couple of months in the workshop exploring new ways of shaping and forming glass. I began working on ideas for a series of wearable objects that I envisaged taking the form of brooches.

I wanted to constrain the glass in a metal structure and approached this concern in a number of different ways and with different methods and materials. I experimented with blowing glass into a wire frame or cage and also with enclosing premade glass shapes in a metal form. This exploration produced shapes that were reminiscent of larvae and cocoons - soft and undefined.

Struggling to produce something that I was happy with, I began to realise what it was that I liked about my previous work. I enjoyed working with single shapes in repetition. I liked the shapes that I made to regular and accurate and to construct lengths of these components into wearable objects. I reconsidered my previous work and tried to identify the strongest and most successful aspects of these pieces. The aspects that I found the most exciting were the rhythm of line that could be achieved by repeating shapes and the forms that could be made by combining different components made with different materials. Once I had decided on the best aspects of my earlier work, I began to pick up on them and use them as the beginning of a new body of work. I came to realise that I didn't have to develop a whole new set of ideas and that in fact it made good sense to continue building on what I had already achieved.

Although I didn't pursue the shapes developed in the tests, other aspects of this experimental process informed the work that followed. I began to understand how I could join glass and metal by using the glass to make a "hot" join. I originally made "hot" rivets by melting balls onto the ends of metal wire to stop the wire from pulling through a hole drilled into another piece of metal. I then realised that I could do the same thing with glass. To use this technique, I needed to use metals that could withstand high temperatures without melting. I began to work with stainless steel, mild steel and titanium. These metals could cope with being touched by the lampworking flame which burns at a temperature of approx 1400 °C when working with borosilicate glass. I also found that during the annealing process, these metals would change colour. In particular, stainless steel heat colours to a bright blue/purple at the annealing temperature of pyrex (550 °C). This was a new way for me to introduce colour into my work. In my undergraduate work I had used anodised aluminium in a number of pieces. This was possible because I made all the components for a piece separately and then joined them together with a "cold" joining method such as screwing components together, or joining them together with rubber O-rings. Because the anodised surface cannot stand up to the extreme heat of the torch, it was no longer suitable to use in my new work.



Tests, 1994 lampworked glass, stainless steel wire dimensions variable

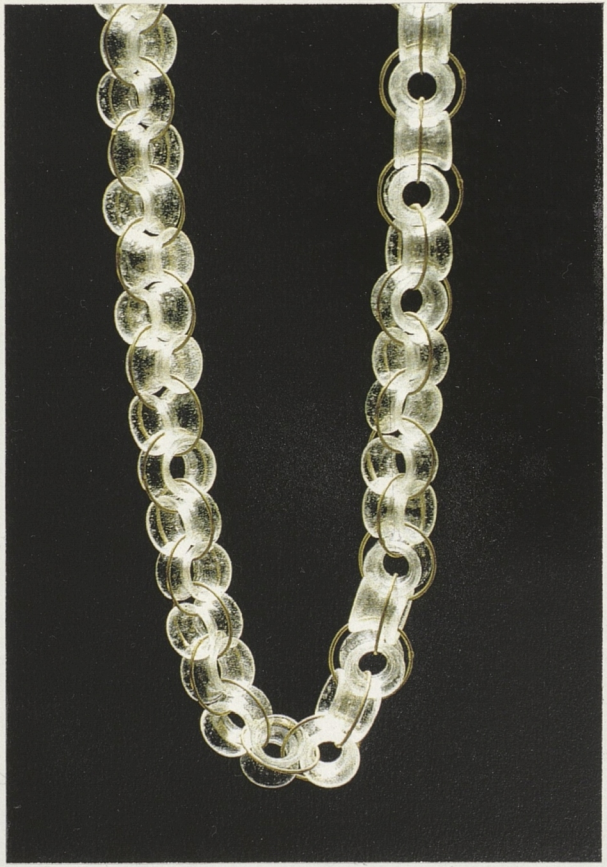
When writing my work proposal I had included many options for my direction of study, including making objects for different parts of the body other than the neck and including different materials in my work. As my new work developed, I became more specific and these other options became less relevant.

The development and increasing sophistication of my work has been motivated by different considerations. Initially I was excited by the possibility of making a chain using glass that had total three way movement. Once I had achieved this, the potential to make work

within this design parameter and the endless ways that I could work within this given area has been a source of continual challenge. The possibility of working with a range of different metals has meant that I have come to an understanding of the properties and possibilities of working with each of them in combination with glass.

My first piece to combine glass with gold was an exciting progression, as gold is perhaps the most recognised material for use in the production of jewellery. When I made the piece that used gold wire I learnt how to produce a gold alloy. I chose to make 14 carat gold because of its colour and malliability. Adding silver and copper to fine gold increased the material's strength and allowed me to draw the gold down to a fine wire (0.7mm diameter) By using gold I was able to make very fine links. Pyrex glass is heat and shock resistant, so I was able to solder each gold link together around the glass shape, constructing the chain link by link. This example shows the way that I choose materials for their physical properties, as well as for their visual effect. The glass and metal when combined in this way are very compatible.

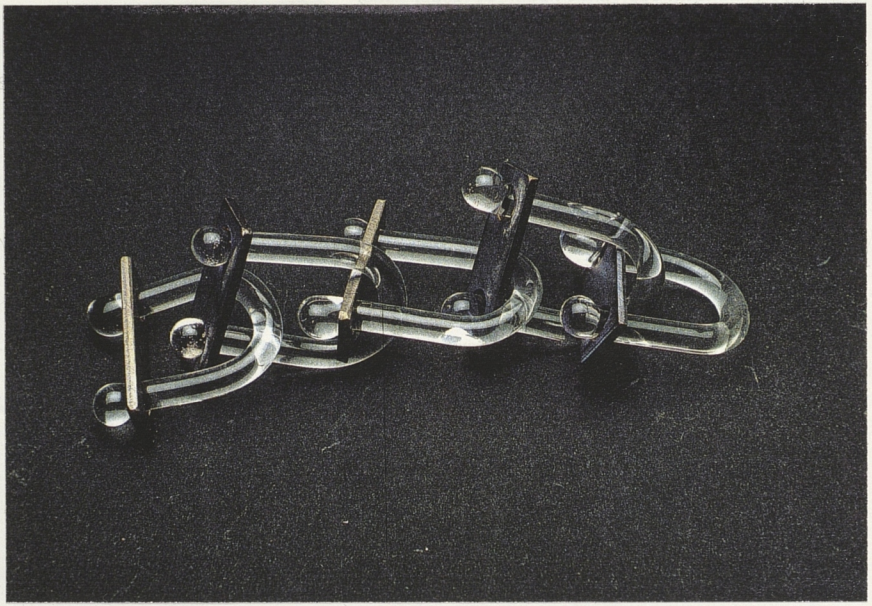
In my work I try to place emphasis on clarity and simplicity in one design. I would prefer to explore a number of small variations to an idea in a number of different works rather than have a lot happening visually in a single piece. This idea, or method of deciding what to make is becoming more important to me as I progress with this series of work - the next piece seems to flow out of the last and I have often thought through a new piece as I am working on the current one. I enjoy working in a step-by step way. This way or working lends itself well to the nature of my work.



Chain 1995, glass, gold, 585 30cm diameter

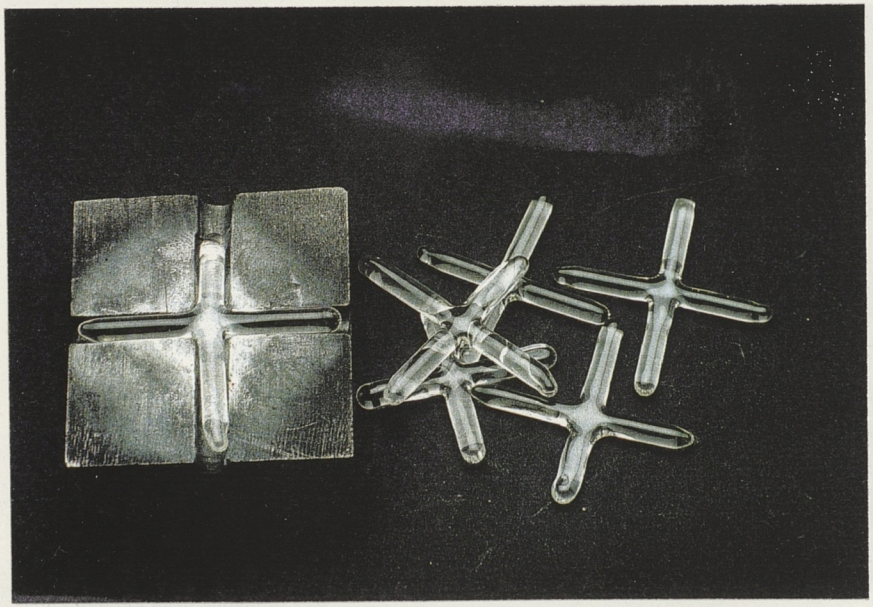
I have established a method for making these pieces. Each piece is developed in a drawing and then refined by making a model. When I make the model I experiment with different materials and decide what type of metal will best suit the piece. I change the size of the different components, trying to see how accurate I can be in the making of them, how I will put the piece together, the extent of movement in the links, if the chain has enough movement in every direction to make it wearable and so on.

Sometimes when I am making these models I put the components together in a way that I hadn't anticipated and this combination works better than the ones that I have drawn in my sketch book. It is as though my hands know what they are doing by themselves without me having to think about it beforehand. This is a new development and an exciting experience that has developed with continual working and making.



Model, 1994 lampworked glass, stainless steel

Once I have determined the scale of the piece and the materials, I work out what specific equipment I need to make the piece and I make any tools or jigs at this stage. Making my own tools and jigs is an important skill that I have developed while I have been working in the gold and silversmithing workshop. Understanding how to make tools has meant that I have been able to improve the accuracy of the components I make, as well as helping me to manufacture unique shapes and links.

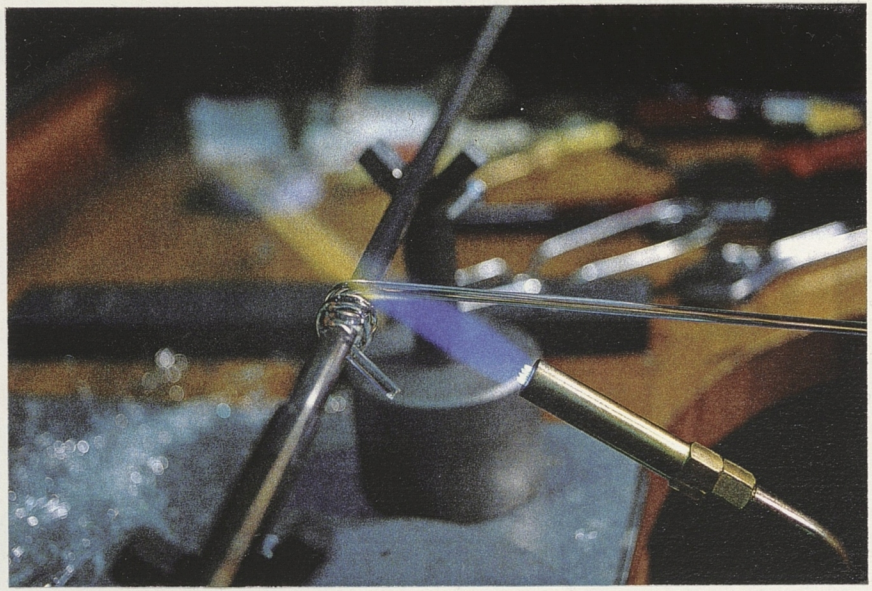


Mould, graphite ,lampworked glass

Having decided on the design and the materials, and organising any extra tools or jigs that I need for the piece, I make the components. For example, with the metal components I make gold or silver ingots then draw them down to the right diameter wire, form the wire into a continuous spring, and then saw through the spring to make individual links. For another piece I have pulled apart a bicycle chain, resized the holes, and sandblasted the components. The process involved in the manufacture the metal components is different for each piece. Although I may use machinery such as a lathe or milling machining, each component is made individually by hand.

I also make the glass components. The components are made from either tube or rod. When using tube I saw it into lengths, grind away the chipped edge on each piece. and then manipulate the short lengths of tube in a glass spinner or lathe, to make different shapes. Once the shapes are made and annealed I can change the surface of the glass by sandblasting or acid etching.

When using rod, I form the glass in a number of different ways. These include winding the glass around a metal mandril to make a spring shape, which I then cut up and make into links. In a number of my pieces I have used a "U" shape, made from 4mm glass rod. These "U's" are individually made on a lampworking torch. I calculate the number of components needed for a length of chain and then make a number of extra components. By doing this I can choose the components that are most similar in size.



Winding glass rod onto a metal mandrel to form links

Once I have made all the glass and metal components, I begin to put the piece together. Sometimes I heat the metal to join the components - for example by soldering and in other pieces I may heat the ends of the glass components to form balls and so produce a type of rivet to stop the glass shape from pulling out of the metal shape. I construct the chain, link by link until I have a length that will form a circle that will fit over the head. I usually decide the length of a neckring by taking into consideration the size of the components and the way that the piece will sit on the body.

Constructing a chain link by link using the torch

Once the chain is constructed, I clean it and then anneal it in a kiln. It is important that the glass and metal are clean: grease or dirt can melt into the surface of the glass, and can change the surface colour on the metal. If the metal used in a piece were stainless steel, mild steel or titanium, the metal would change colour at this stage in the kiln. I can control the colour of the metal by accurately setting the temperature of the kiln. The glass is not effected by going past it's annealing temperature. This however applies only to temperatures up to approximately 650 °C. If this temperature is exceeded, the glass may begin to slump. If another type of glass is used, slumping would occur at a lower temperature. Through experimenting and making tests as well as researching temperatures for heat colouring metal, I can choose the colour of the metal in a piece.

When using sterling silver, a layer of fine silver builds up on the metal during the annealing process. By immersing the chain in pickling solution, a soft white surface develops. I have used this softer metal suface with sanblasted glass components and these two surfaces are very complimantry.

I have come to a different understanding of glass as a material by using it alongside metal. I use it for it's exclusive properties. I use one type of glass - borosilicate glass (with the brand name of "Pyrex") specifically for its working characteristics and visual properties. I have decided only to use clear glass and have changed the surface of the glass to achieve different results. I use clear glass because I find that it manipulates light. The transparency of glass makes it very interesting to work with: it is visible and invisible; sometimes you can only "read" it with your eyes because of the way that it reflects light. In some of my pieces, light is tubed through the glass, picking up the colours in the metal components and also colours from the clothing of the wearer.

Pyrex glass comes from the manufacturer in the form of tubing and rod. In this way it is similar to metal. I buy the glass in a known size and shape, I begin to use it from a given size. When working with larger scale glass blowing, you gather a mass of glass form a tank of molten material. Part of the skill of a glass blower is their skill in taking a "good gather". Once this gather is taken from the furnace the material is moving and the blower is controlling this constant movement as well as shaping, inflating, and manipulating to make a piece. Pyrex doesn't perform in this way - I use glass in a similar way to the way that I use metal. I buy a length of material, measure it, cut it, grind it, and shape it. Sometimes I do this "cold" with a file or linisher and sometimes I do it "hot" with the torch. If I want the glass to stop moving, I take it out of the flame, consider my next step and then continue. This is something that isn't possible with hot glass. When glass blowing once you have the glass on the pipe, you have to continue without stopping until you have finished making the piece. My approach to combining glass and metal takes advantage of the parallels in the two materials.

When working with glass as a material for jewellery there are many technical considerations, but alongside this, the nature of glass as an everyday material is also a consideration. People have a preconceived notion of what glass is, what it looks like and what it can do. I find this interesting. Glass is made to different receipes - it is designed for different functions - it can be cast as a huge mass, accurately ground and used as a lens in a space telescope. Or spun in thin filament and used to transmit light as optic fibre. Glass is a very old material, first used around 6000 BC but it is also an essential part of the twentieth century in so many different areas. The glass that I use is specifically designed for the manufacture of scientific apparatus. It is shock resistant, heat resistant and extremely durable. These qualities are also well suited for the making of jewellery. They suit my work, and I utilise these specific properties in the way I make my pieces.

Glass also has an ambiguous quality that I like playing around with. When people wear my work they say things like "This doesn't look like glass, it doesn't feel like glass, it doesn't sound like glass". My jewellery changes the wearers perception of glass as a material for jewellery.

I intend my work to be functional and completely wearable. It challenges expectations and appeals to the senses. Glass is thought of as sharp, dangerous, and fragile but in my work it is strong, smooth, curved, and rounded. It serves a purpose and has a specific function. Glass is the best material for realising my designs, because it offers very little resistsance and so does not rub or wear. This work is designed specifically to be made from glass.

I feel that it is easy to become trapped when using glass as it is a very seductive and beautiful material. For me it is not enough to be able to make an object out of glass and rely on the material to justify the piece. I choose pyrex glass for a number of reasons and when combining it with metal I choose also the particular metal that I will use in a piece for its specific working qualities and for what it will bring to the piece. The glass has an essential function, both at a visual level and in the making.

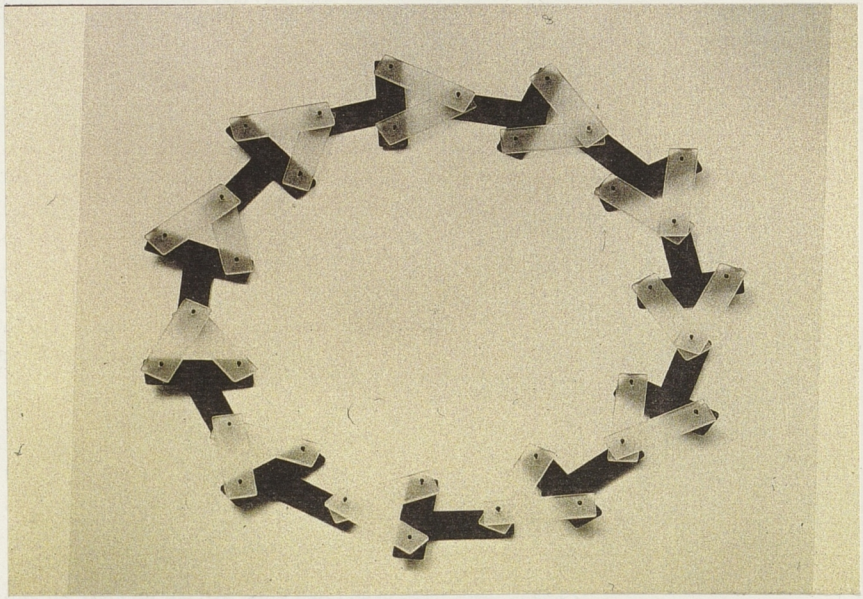
I have become very specialised in my use of materials and this has enabled me to continually refine my ideas and techniques through my work. My work is very much informed by my responses to these specific materials, processes and techniques.

CONTEXT

When beginning this new body of work I looked at a number of contemporary jewellers who made neckpieces out of repetitive components.

It became apparent that there was quite a lot of work being made of this nature in Europe, particularly in Germany. Some workshops such as the PUR studio based in Nettetal, Germany specialise in making chains from repeated components, exclusively in gold and platinum. I have been inspired to see so many different types of chains made with components. While researching for my post grad, I came to realise the long tradition of chainmaking in Europe that I previously didn't fully appreciate. Researching chains and other jewellery made of repeated components was both inspirational and encouraging. I was influenced by the fine detail that has been achieved in metal chains and wanted to develop this aspect of refinement and detail in my glass and metal jewellery.

Artists in particular I have found inspirational include Doris Neumann, Giampaolo Babetto, the PUR workshop, established by Hans Hermann Lingenbrinck.



Doris Neumann, *Necklace* 1986, black and clear flat glass, cut and ground, sandblasted, and assembled

I have been familiar with the work of Dutch jewellery maker, Doris Neumann since studying as an undergraduate. Her work is made of glass and rubber and she makes neckpieces out of repeated geometric components. Her work directly influenced me when I was a student in the CSA glass workshop as I was also making pieces at this time from components that were kiln cast, cut and polished and held
together with rubber. I found her work very appealing because of its simplicity and clarity. The way the components were constructed in a circle conveyed a sense of movement, an aspect of jewellery that I was trying to express in my work at this time. Neumann also used pattern, by varying the colour of the components. This also interested me. I used the shape of a triangle and made patterns by combining different colours, for example the pattern of one blue, one black triangle, or one black, five white triangles in a neckpiece.

Another artist who I have found interesting is the Italian jeweller Giampaolo Babetto. His early work is constructed of gold components. The elegance and harmony of an element repeated in an endless circle is a quality that I have tried to achieve in my work. Babetto's components are completely handmade and there may be up to two thousand components in a neckpiece. He has said that he gets great satisfaction from making these repeated shapes. I recently attended the 1995 Jewellers and Metalsmiths Conference, where Babetto was a speaker and I realised the affinity that I have with this approach to making.

As part of it's marketing strategy, The PUR workshop has a regular fold out page in the German applied art and design magazine *Art Aurea.* Originally, I looked at the long lengths of chain on this fold out page and marvelled at their beauty and accuracy. These chains are constructed from a seamless, uninterrupted series of gold and platinum components. Quite often I can't figure out how they are put together, and this is part of their appeal - they seem to have been put together as if by magic.

My final influence is Johannes Kuhnen. He originally saw the potential of my work and made me see that my chains could have the same magic. As an artist and a teacher he has been a constant source of information, inspiration and encouragement. I feel I have been extremely fortunate to have had his direct input into my work for the five years that I have been associated with the Canberra School of Art.

Giampaolo Babetto, *Gold Necklace* 1970 gold 750

CONCLUSION

It has been very gratifying to see this series of work develop. It has come together step by step in the same way as one of my chains develops, with many small achievements adding up to a body of work.

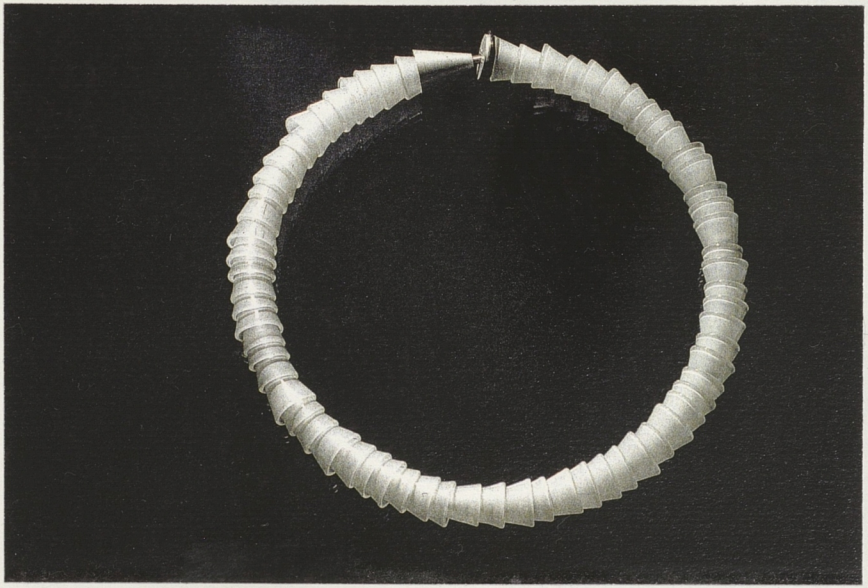
I want to continue with these pieces. I have been greatly encouraged by the response and positive feedback that I have received both here in Canberra and further afield.

I want to continue to explore the potential of titanium in my work. It is lighter than stainless steel and also can add the dimension of colour to my chains.

I also want to look at the possibilites of having metal components laser and water jet cut, which could allow my designs to be made in limited production.

I feel that my work has found a new direction, and has progressed. It is more resolved and refined. I have hit on something that at the moment seems to still have scope for further development.

I have applied to undertake an Australia Council VACB traineeship with Susan Cohn. I am looking forward to the challange of working with such a dynamic artist, and am open to new directions for my practise in the future, especially in the area of multiple production.



Cone Neckpiece 1994 lampworked glass, anodised aluminium, monel, rubber, stainless steel cable, 22cm diameter

Chain, 1994 lampworked glass, 925 silver, 24cm diameter

Chain 1994 lampworked glass, stainless steel, 31cm diameter

Chain, 1995, lampworked glass, 925 silver, 25cm diameter

Chain, 1995, lampworked glass, 925 silver 28cm diameter

Chain, 1995, lampworked glass, 925 silver 34cm diameter

Chain, 1995, lampworked glass, gold plated 925 silver 24cm diameter

Chain, 1995, lampworked glass, mild steel 25cm diameter

Chain, 1995, lampworked glass, titanium 30cm diameter

Chain, 1995, lampworked glass, stainless steel 26cm diameter

Chain, 1995, lampworked glass, stainless steel 26cm diameter

GLOSSARY OF TERMS

Alloy
Two or more metals are combined to make a compound or alloy. This is done to change visual properties such as colour, of working properties such as increasing hardness, density, corrosion resistance or to lower the melting point of a base metal in an alloy.

Anneal - glass
The basic principle of annealing is to hold the hot glass at a temperature where it is fluid enough for internal stresses to relax, and then cool the glass so slowly that both the the inside and the outside, the thick sections and the thin sections can shrink evenly. This way, stress is removed from a finished piece. Borosilicate glass anneals at 560°C

Anneal - metal
Heat treating a metal to a temperature below it's critical range, mainly to relieve residual stresses and also to render the metal soft for further cold working.

Chain
A series of plain or ornamental links, connected or fitting through each other.

Mandrel
A rod of metal used for forming rings

Pickle
An acid solution used for the removal of oxides from metal surfaces, usually after soldering.

Sandblasting
Abrasive grain particles are blown against a surface by compressed air through a nozzle. When used on metal this gives an even finish. When used on glass it changes the apperance of the glass surface, making it look matt or frosted.

TECHNICAL NOTES

Safety Concerns when Lampworking

- Good ventilation is necessary in the area where you intend to do lampworking.
- It is important to wear safety glasses made with "Didymium" lenses when working on the glass torch. These lenses reduce sodium flare from the flame. Sodium flare can damage the eye over time by burning the retina and can cause the development of cataracts.
- Any flammable materials should be kept away from the lampworking area
- Care should be taken with gas and oxygen cxylinders, regulators and hoses.

Annealing cycle used for glass chains

	Ramp	Temperature	Hold
First stage	150°C per hour	550°C	No hold
Second stage	no ramp	550°C	60 minutes

-then let kiln cool to room temperature before removing piece

Annealing temperatutes of some metals

Metal	°C	Melting Point °C
Aluminium	337-354	660.2
Copper	371-648	1083
Gold, alloys	648-710	879.4-996
Silver, sterling	648.8	893.3
Steel	746-898.8	1538.8-1648.8

(depending on carbon content and alloy)

Borosilicate Glass (Brand name "Pyrex")

Silica content	83 % approx
Borax content	12 % approx
Working temperature	1400 °C
Annealing temperature	550 °C
Coefficient of expansion	32

Pickle solution

The pickle that I used to immerse my glass and silver chains is diluted sulphuric acid (10% acid, by volume) This acid does not effect the glass.

Heat colouring of Titanium

Colour	Temperature °C
Pale yellow	371
Pale gold-straw	385
Dark gold-brown	398
Purple	412
Blue/Purple	426
Deep blue	440
Medium Blue	454
Pale blue	468
Blue-green	482
Green-blue	496
Pale green	510
Green-gold	523
Green-gold, purple marked	537
Rose-gold	551
Red-purple	565
Purple-gold	579
Dull purple,blue marked	593
Green-purple marked	607
Dull green with red	621
Brown-grey matt	635
Mottled grey opaque	648

Heat colouring of Stainless Steel

Colour	°C
straw	250
light pink	260
rose purple	270
pink/blue	280
medium blue	290
grey/blue	300
white/blue	320

Colours continue to develop through this range as temperature increases and time held at this temperature increases

BIBLIOGRAPHY

Untract Oppi Jewellery Concepts and Technology
published New York USA1982, 1985
Doubleday & Co, Inc

Dunham Bandhu Scott
Contemporary Lampworking-A Practical Guide to Shaping Glass in the Flame
1993 Pre-publication Edition
published Prescot USA 1993

Turner Ralph Contemporary Jewelry Critical Assessment1945-1975

Berlye Milton K. The Encyclopedia of Working With Glass
Oceana Publications Inc 1968
Dobbs Ferry, New York

Artisti Orafi Contemporanei 1- Giampaolo Babetto I Vuoti D'Oro
Aurum Publishing AG Zurich Switzerland1991

Dormer Peter & Turner Ralph The New Jewellery-Trends and Traditions
1985,1994 Thames and Hudson Ltd, London

Grant Lewin Susan American Jewellery Today
1994 Thames and Hudson Ltd, London

Anderson Patricia Contemporary Jewellery-The Australian Experience1977-1987
1988-Millenium Books PTty Ltd,Sydney,Australia

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The Canberra School of Art Gallery.
My friends who have given me support and encouragement during the last 12 months.
Thankyou!

COPY OF ORIGINAL PROPOSAL

Aims of the Study Program

In a year of post graduate study, I intend to extend the ideas and techniques that I developed during my undergraduate studies. While studying glass I began to specialise in the area of jewellery and based my graduate work on the combination of glass and metal elements in the form of neckpieces.

I feel that glass as a material has great potential for use in jewellery, both on its own, and in combination with other materials. It is the combination of metal and glass that I seek to pursue in my post graduate studies.

I am interested in broadening my artistic practise by studying in the Gold and Silversmithing workshop as there is the opportunity to explore materials such as stainless steel and anodised aluminium, as well as those materials more traditionally associated with jewellery, in combination with glass.

I would also consider using materials that I have not used in my work previously, such as perspex and other types of plastic and synthetic materials.

Scope of the Study Program

1. Exploring jewellery and its forms
- investigation of the parameters of objects designed to be worn on the body. This may include the site of the work (e.g hand, arm, leg, as well as neck and ear), wearability of different materials, etc.

- challenging the notion of a necklace which is traditionally threaded beads - devising connecting mechanisms that could be drawn from both industrial and scientific linking systems, and cell structures rather than traditional jewellery techniques.

2. Properties of metal and their potential relationship to glass

- changing the emphasis of materials used in my work making larger metal components that move on smaller glass pieces - integrating metal and glass together.

- extending the use of metal in my work by developing metal working skills and becoming competent in using the equipment available in the Gold and Silversmithing
studio.

- investigating the intrinsic qualities of materials used, and the combination of these materials. For example, combining softer shapes in metal with hard edges glass components - challenging the perception of each material - combining geometric and organic forms.

3. Further exploration of the properties of glass
- extension of the use of glass by developing new skills that would make it possible for me to manipulate the glass to a much greater extent, and to expand on the shapes that I have used in previous

work.

4. Extension of concepts and techniques investigated in undergraduate work

- continue to use repetition
- combinations of metal and glass components
- develop design skills further for all areas of the jewellery with attention given to scale, designs for the metal and glass components, the connecting system, the finishing catch/terminal
- extend and further develop technical skills in the working of both metal and glass
- extend the use of pyrex through lampworking - a technique that has great potential and is well suited to the making of components for jewellery. This is in part due to the working properties of pyrex glass. It is strong and durable as well as being lightweight. It has very optical properties - a highly reflective/ refractive surface. This surface can be manipulated by sandblasting or adding colour and metallic lustre.
- the scale of the work refers to the scale of the body as a reference point.

Context

Few jewellers in Australia use a combination of metal and glass in their work. Of jewellers using a combination of these materials, the work of Helen Aitken-Kuhnen, James Minson, and Giselle Courtney have been influential in my decision to develop this aspect of my work. In pursuing this line of investigation, I would hope to contribute to and expand upon the technical vocabulary of the artists working in this way.

I began my undergraduate working solely with glass and developed a number of skills relevant to working in that medium. I now require specific skills that are necessary for working in metal. Having spent much of my undergraduate studies working in the gold and silversmithing workshop, I know that my work would be greatly enhanced by a post graduate year in the workshop.

Conclusion

I would greatly value the opportunity to continue to develop my work during a post graduate year. I see my undergraduate work as a starting point for a new direction in my art practise. With the influence of the gold and silversmithing workshop, I hope to explore new materials, develop the conceptual and technical aspects of my practise, and to further my skills in design.

CURRICULUM VITAE

1968 Born Kiama, NSW

EDUCATION

1995 Candidate for Graduate Diploma of Art
Gold and Silversmithing CITA- ANU
1992 Bachelor of Arts (Visual) Glass CITA - ANU
1988/89 Bachelor of Arts (Visual) Undergraduate
1st and 2nd year complete
Glass and Jewellery
Sydney College of the Arts

SOLO EXHIBITION

1992 *Articulation* Glass Workshop, CITA ANU

SELECTED GROUP EXHIBITIONS

1995 *Glass In Australia* Meat Market Craft Centre, Melbourne
Cohn Award for Street Jewellery National Gallery of Victoria
Graduate Metal Meat Market Craft Centre, Melbourne
1994 *Christmas Show* Glass Artist's Gallery, Sydney
Christmas Show Crafts Council of the ACT, Canberra
Australian Craft Fair National Convention Centre, Canberra
Wearable Glass Glass Artist's Gallery, Sydney
Members Show Crafts Council of the ACT, Canberra
Contemporary Jewellery Biennial Griffith Regional Gallery
Lampworking Exhibition Glass Artist's Gallery, Sydney
Act Out First Draft Gallery, Sydney
1993 *Origins and Originality* Ausglass Members Exhibition
Drill Hall Gallery, Canberra
Directions-Jewellery Canberra School of Art Foyer Gallery
Wagga Wagga City Art Gallery
Orange Regional Art Gallery
Crafts Council of Victoria Gallery, Melbourne
A Twist of Lemon (with Philippa Playford)
Glass Artist's Gallery, Sydney
Talentborse Handwerk Munich, Germany
Small Works Glass Artist's Gallery, Sydney
New Marks Makers Mark Gallery, Melbourne
Women Under Glass The Door Exhibition Space, Fremantle
Act Out ANCA Gallery, Canberra
Peter Minson and Michelle Tilden Hyatt Hotel, Canberra
1992 *Revolution in the White Palace*
Canberra School of Art Gallery
Art in Shopfronts Taylor Square, Sydney
Neckworks Fremantle Arts Centre, Perth
Australian Wearable Glass Asa Gallery, Toyko, Japan
Wearable Glass Glass Artist's Gallery, Sydney
Wearable Glass Jam Factory Gallery, Adelaide
Glass Jewellery Golschmiedhaus, Hanau, Germany
Canberra Gaze Gallery 483, Sydney
1991 *Wearable Glass* Glass Artist's Gallery, Sydney
1989 *ANZ Prize Exhibition* Glass Artist's Gallery, Sydney

AWARDS AND GRANTS

1994 ACT Arts and Special Events Grant for Studio Equipment

PUBLICATIONS

1995 *Object* Sylvia Kleinert, "Reframing The Cutting Edge"
Object 4, 1994-5, pp 15-18

1993 *LemelJMGA Autumn 1993*
Stephen Proctor Directions Glass Jewellery pp12-13

1992 Design Ink Universities and Colleges Supplement

COLLECTIONS

Saxe Collection, California USA
Wagga Wagga Regional Gallery, Wagga Wagga NSW

PROFESSIONAL EXPERIENCE

1995 Secretary, Management Committee
Crafts Council of the ACT
Accredited Professional Member Crafts Council of the ACT
Technical Assistant
Canberra School of Art Glass Workshop Summer Program
Beadmaking Shari Maxon Hopper (USA)

1994 Trainee Curator Canberra School of Art Gallery
Worked for Peter Minson on production pieces

1993 Established own studio in Canberra

1992-95 Gallery Technician Canberra School of Art Gallery

1992 ACT Ausglass Rep Elected State Representative

1991 Technical Assistant Ausglass Conference Workshops
Illusionary Space Dana Zamecnikova (Czechoslovakia)

1989 Studio Assistant Maureen Cahill
Gallery Assistant Glass Artist's Gallery, Sydney